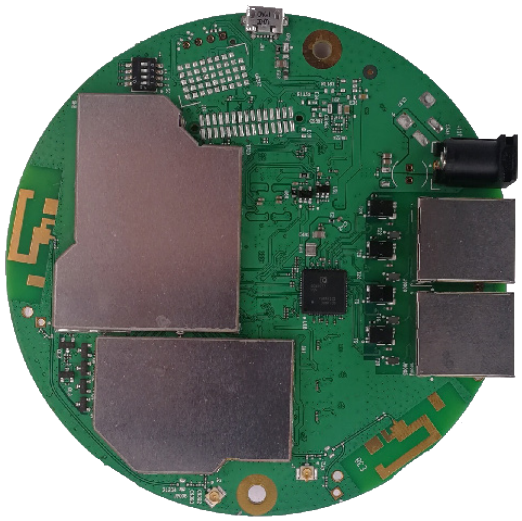
Qualcomm's IPQ6000 WiFi 6 (802.11ax) Embedded Board

Dual Band Dual Concurrent / MU-MIMO OFDMA

Model: AP.CP03



KEY FEATURES

- Qualcomm-Atheros IPQ6000
- Quad-core ARM 64 bit A53s 1.2GHz processor
- 2.4GHz, 2x2 MU-MIMO OFDMA Technology, up to 573Mbps
- 5GHz, 2x2 MU-MIMO OFDMA Technology, up to 1201Mbps
- 2 on board radios (Dual Band Concurrent Radio)
- Supports Dynamic Frequency Selection (DFS)

APPLICATIONS

- 802.11ax MU-MIMO OFDMA Access Point
- Mesh router supporting EasyMesh
- Smart AP TWT

Specifications

Chipset	Qualcomm-Atheros IPQ6000
CPU Frequency	Quad-core ARM 64 bit A53 @1.2GHz processor
System Memory	DDR3L 512MB 16-bit interface
NAND Flash	128MB
NOR Flash	16MB
Ethernet Port	2x 1Gbps Ethernet Ports
DC Jack Input	1x DC Jack Connector: 12V
Power Consumption (Board Only)	13W (Max)
On Board Radio	2 radios (Dual band concurrent radio)
Wireless	On-board 2x2 2.4GHz MU-MIMO OFDMA 802.11b/g/n/ax, max 20dBm per chain On-board 2x2 5GHz MU-MIMO OFDMA 802.11a/n/ac/ax, max 20dBm per chain 2x U.FL Connectors, diplexer allows dual band concurrent operation
Frequency Range	2.412~2.472GHz, 5.150~5.825GHz
2.4GHz Data Rate	2x2 MU-MIMO OFDMA Technology, up to 573Mbps
5GHz Data Rate	2x2 MU-MIMO OFDMA Technology, up to 1201Mbps
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM,1024QAM
LED	4x LED Indicators
USB /Header	1x MicroUSB 2.0 Port
Serial Port	1x Serial Interface 12 Pin Connectors
Certification	TBD
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Temperature Range	Operating: -20°C to 60°C Storage: -40°C to 90°C
Dimension (Diameter x Height)	100mm x 23.5mm (Without Heatsink) TBD (With Heatsink)

1.The Serial Port is a 4-pin header (TTL). A Serial Converter is available to change the TTL signals on the board to RS-232 signals for debugging.

**Configurations are subject to change without notifications.*

RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11b	1Mbps	20dBm	23dBm	±2dB
	2Mbps	20dBm	23dBm	±2dB
	5.5Mbps	20dBm	23dBm	±2dB
	11Mbps	20dBm	23dBm	±2dB
2.4GHz 802.11g	6Mbps	20dBm	23dBm	±2dB
	9Mbps	20dBm	23dBm	±2dB
	12Mbps	20dBm	23dBm	±2dB
	18Mbps	20dBm	23dBm	±2dB
	24Mbps	20dBm	23dBm	±2dB
	36Mbps	20dBm	23dBm	±2dB
	48Mbps	20dBm	23dBm	±2dB
	54Mbps	18dBm	21dBm	±2dB
2.4GHz 802.11n HT20	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	19dBm	22dBm	±2dB
	MCS 3	19dBm	22dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
2.4GHz 802.11n HT40	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	18dBm	21dBm	±2dB
	MCS 5	18dBm	21dBm	±2dB
	MCS 6	17dBm	20dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11b	1Mbps	-97	±2dB
	2Mbps	-95	±2dB
	5.5Mbps	-93	±2dB
	11Mbps	-91	±2dB
2.4GHz 802.11g	6Mbps	-95	±2dB
	9Mbps	-93	±2dB
	12Mbps	-91	±2dB
	18Mbps	-89	±2dB
	24Mbps	-86	±2dB
	36Mbps	-83	±2dB
	48Mbps	-80	±2dB
	54Mbps	-78	±2dB
2.4GHz 802.11n HT20	MCS 0	-95	±2dB
	MCS 1	-93	±2dB
	MCS 2	-91	±2dB
	MCS 3	-88	±2dB
	MCS 4	-85	±2dB
	MCS 5	-83	±2dB
	MCS 6	-81	±2dB
	MCS 7	-78	±2dB
2.4GHz 802.11n HT40	MCS 0	-92	±2dB
	MCS 1	-90	±2dB
	MCS 2	-88	±2dB
	MCS 3	-85	±2dB
	MCS 4	-83	±2dB
	MCS 5	-81	±2dB
	MCS 6	-78	±2dB
	MCS 7	-75	±2dB

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

RF Performance Table for 2.4GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
2.4GHz 802.11ax HE20	MCS 0	19dBm	22dBm	±2dB
	MCS 1	19dBm	22dBm	±2dB
	MCS 2	19dBm	22dBm	±2dB
	MCS 3	19dBm	22dBm	±2dB
	MCS 4	19dBm	22dBm	±2dB
	MCS 5	19dBm	22dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	15dBm	18dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB
2.4GHz 802.11ax HE40	MCS 0	18dBm	21dBm	±2dB
	MCS 1	18dBm	21dBm	±2dB
	MCS 2	18dBm	21dBm	±2dB
	MCS 3	18dBm	21dBm	±2dB
	MCS 4	18dBm	21dBm	±2dB
	MCS 5	18dBm	21dBm	±2dB
	MCS 6	17dBm	20dBm	±2dB
	MCS 7	16dBm	19dBm	±2dB
	MCS 8	15dBm	18dBm	±2dB
	MCS 9	15dBm	18dBm	±2dB
	MCS 10	14dBm	17dBm	±2dB
	MCS 11	14dBm	17dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
2.4GHz 802.11ax HE20	MCS 0	-95	±2dB
	MCS 1	-93	±2dB
	MCS 2	-90	±2dB
	MCS 3	-87	±2dB
	MCS 4	-84	±2dB
	MCS 5	-81	±2dB
	MCS 6	-79	±2dB
	MCS 7	-76	±2dB
	MCS 8	-73	±2dB
	MCS 9	-70	±2dB
	MCS 10	-68	±2dB
	MCS 11	-65	±2dB
2.4GHz 802.11ax HE40	MCS 0	-92	±2dB
	MCS 1	-90	±2dB
	MCS 2	-87	±2dB
	MCS 3	-85	±2dB
	MCS 4	-83	±2dB
	MCS 5	-79	±2dB
	MCS 6	-77	±2dB
	MCS 7	-74	±2dB
	MCS 8	-71	±2dB
	MCS 9	-68	±2dB
	MCS 10	-65	±2dB
	MCS 11	-63	±2dB

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11a	6Mbps	20dBm	23dBm	±2dB
	9Mbps	20dBm	23dBm	±2dB
	12Mbps	20dBm	23dBm	±2dB
	18Mbps	20dBm	23dBm	±2dB
	24Mbps	20dBm	23dBm	±2dB
	36Mbps	20dBm	23dBm	±2dB
	48Mbps	20dBm	23dBm	±2dB
	54Mbps	18dBm	21dBm	±2dB
5GHz 802.11n/ac VHT20	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
5GHz 802.11n/ac VHT40	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	16dBm	19dBm	±2dB
5GHz 802.11ac VHT80	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	16dBm	19dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11a	6Mbps	-95	±2dB
	9Mbps	-93	±2dB
	12Mbps	-90	±2dB
	18Mbps	-88	±2dB
	24Mbps	-86	±2dB
	36Mbps	-84	±2dB
	48Mbps	-81	±2dB
	54Mbps	-79	±2dB
5GHz 802.11n/ac VHT20	MCS 0	-96	±2dB
	MCS 1	-94	±2dB
	MCS 2	-91	±2dB
	MCS 3	-89	±2dB
	MCS 4	-87	±2dB
	MCS 5	-85	±2dB
	MCS 6	-82	±2dB
	MCS 7	-79	±2dB
	MCS 8	-76	±2dB
5GHz 802.11n/ac VHT40	MCS 0	-93	±2dB
	MCS 1	-91	±2dB
	MCS 2	-88	±2dB
	MCS 3	-86	±2dB
	MCS 4	-84	±2dB
	MCS 5	-81	±2dB
	MCS 6	-78	±2dB
	MCS 7	-74	±2dB
	MCS 8	-72	±2dB
	MCS 9	-69	±2dB
5GHz 802.11ac VHT80	MCS 0	-90	±2dB
	MCS 1	-88	±2dB
	MCS 2	-85	±2dB
	MCS 3	-83	±2dB
	MCS 4	-80	±2dB
	MCS 5	-78	±2dB
	MCS 6	-75	±2dB
	MCS 7	-72	±2dB
	MCS 8	-69	±2dB
	MCS 9	-66	±2dB

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

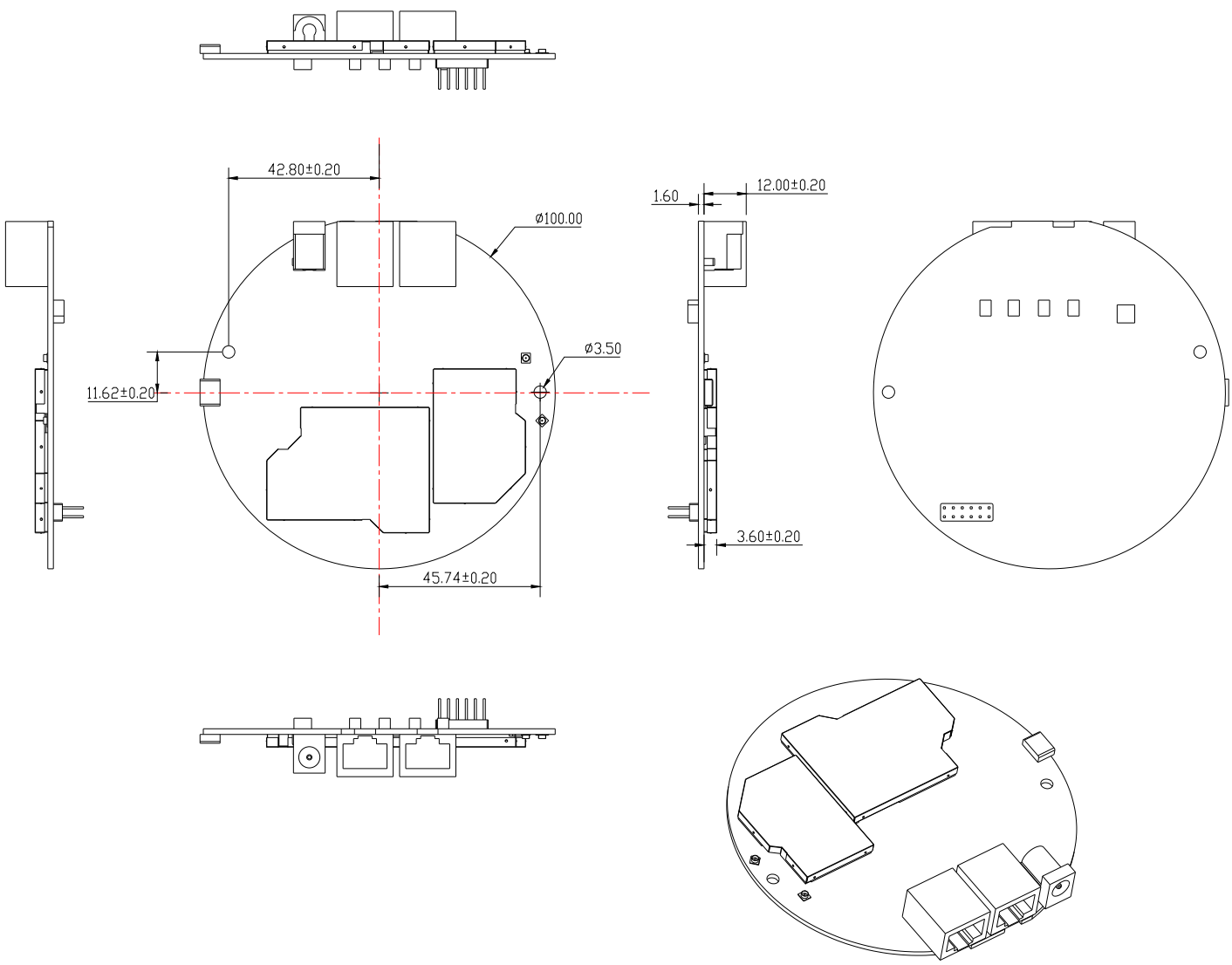
RF Performance Table for 5GHz

	Data Rate	TX Power (per chain)	TX Power (2 chains)	Tolerance
5GHz 802.11ax HE20	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	16dBm	19dBm	±2dB
	MCS 10	15dBm	18dBm	±2dB
	MCS 11	15dBm	18dBm	±2dB
5GHz 802.11ax HE40	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	17dBm	20dBm	±2dB
	MCS 9	16dBm	19dBm	±2dB
	MCS 10	15dBm	18dBm	±2dB
	MCS 11	15dBm	18dBm	±2dB
5GHz 802.11ax HE80	MCS 0	20dBm	23dBm	±2dB
	MCS 1	20dBm	23dBm	±2dB
	MCS 2	20dBm	23dBm	±2dB
	MCS 3	20dBm	23dBm	±2dB
	MCS 4	20dBm	23dBm	±2dB
	MCS 5	20dBm	23dBm	±2dB
	MCS 6	18dBm	21dBm	±2dB
	MCS 7	17dBm	20dBm	±2dB
	MCS 8	16dBm	19dBm	±2dB
	MCS 9	16dBm	19dBm	±2dB
	MCS 10	15dBm	18dBm	±2dB
	MCS 11	15dBm	18dBm	±2dB

	Data Rate	RX Specifications Sensitivity	Tolerance
5GHz 802.11ax HE20	MCS 0	-96	±2dB
	MCS 1	-94	±2dB
	MCS 2	-91	±2dB
	MCS 3	-89	±2dB
	MCS 4	-86	±2dB
	MCS 5	-83	±2dB
	MCS 6	-80	±2dB
	MCS 7	-77	±2dB
	MCS 8	-74	±2dB
	MCS 9	-71	±2dB
	MCS 10	-68	±2dB
	MCS 11	-66	±2dB
5GHz 802.11ax HE40	MCS 0	-93	±2dB
	MCS 1	-91	±2dB
	MCS 2	-88	±2dB
	MCS 3	-85	±2dB
	MCS 4	-82	±2dB
	MCS 5	-79	±2dB
	MCS 6	-77	±2dB
	MCS 7	-74	±2dB
	MCS 8	-71	±2dB
	MCS 9	-68	±2dB
	MCS 10	-65	±2dB
	MCS 11	-63	±2dB
5GHz 802.11ax HE80	MCS 0	-90	±2dB
	MCS 1	-87	±2dB
	MCS 2	-84	±2dB
	MCS 3	-81	±2dB
	MCS 4	-78	±2dB
	MCS 5	-75	±2dB
	MCS 6	-72	±2dB
	MCS 7	-70	±2dB
	MCS 8	-67	±2dB
	MCS 9	-65	±2dB
	MCS 10	-62	±2dB
	MCS 11	-59	±2dB

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

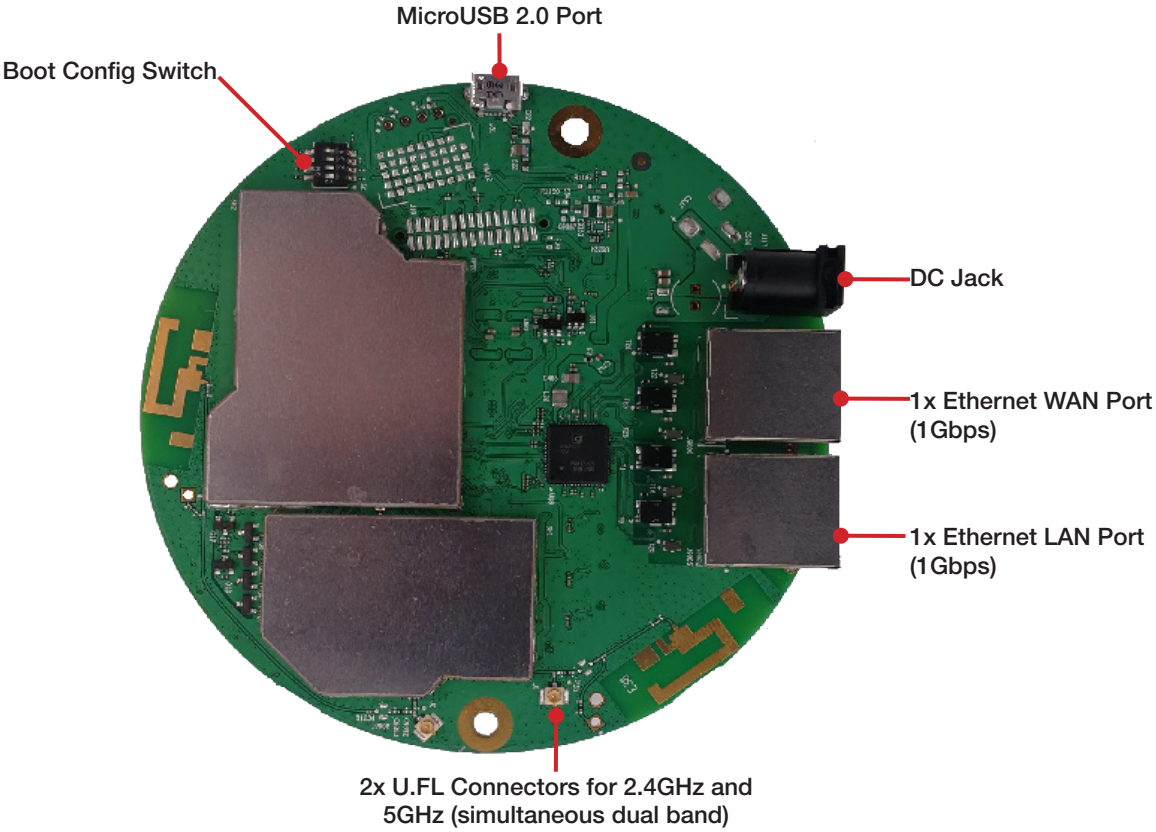
Mechanical Dimensions

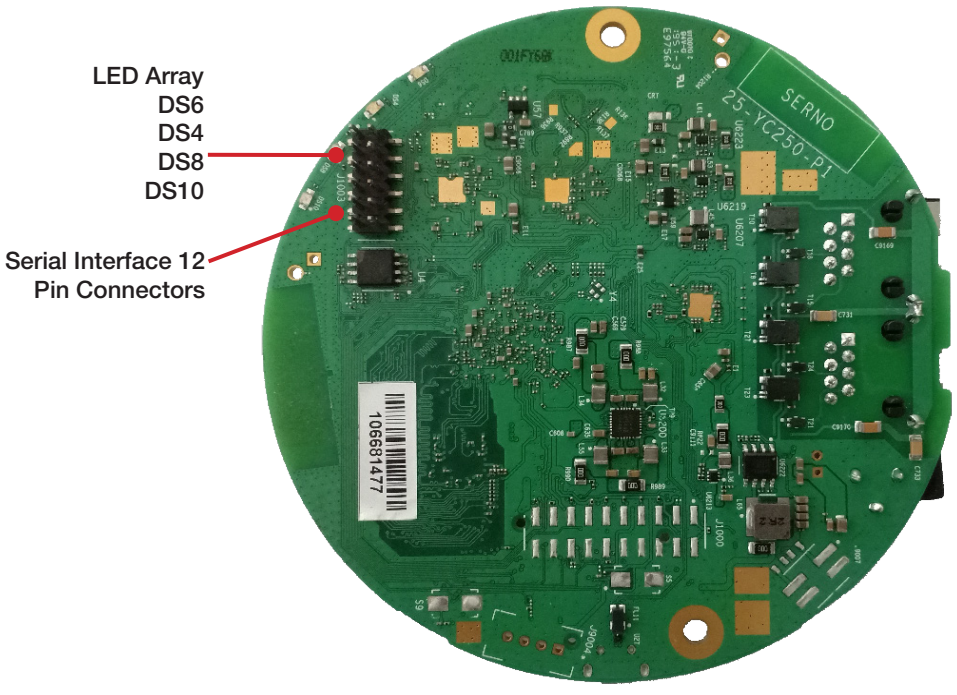


All dimensions are in mm.

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

Component Map





Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.

Firmware / Software

Firmware	OpenWRT Barrier Breaker

Development Kits

SDK	SDKs with QCA binary drivers are available for software developers.
Accessory	Serial Converter , Power Supply Only if available

Ordering Options

Item Code	Processor	Power Solutions
AP.CP03 PR16512R1.01-TE	IPQ6000	12V DC

Copyright © Compex Systems. All rights reserved. COMPEX and the COMPEX logo, are registered trademarks of Compex Systems Pte Ltd.
While every effort is made to ensure the information is accurate, Compex does not accept liability for any errors or mistakes that may arise.
All specifications are subject to change without notice.